

Amendment(s) to the Claims

The following listing of claims replaces all prior versions and listings of claims in the present application:

Listing of Claims:

Claim 1 (withdrawn): A spraying system for applying one or more materials to an open mold while said mold resides within a molding machine, said spraying system comprising:

a spray head for directing said one or more materials onto portions of said mold;

a manipulator connected to said spray head, and adapted to position said spray head between halves of said open mold between molding cycles of said molding machine;

a source of said one or more materials in communication with said spray head;

a pressure boosting device positioned between each source of said one or more materials and said spray head, said pressure boosting device adapted to increase the pressure of the material passing therethrough; and

a control device in electronic communication with said manipulator and each pressure boosting device for controlling the operation thereof.

Claim 2 (withdrawn): The spraying system of claim 1, wherein said mold is a die-cast mold.

Claim 3 (withdrawn): The spraying system of claim 1, wherein said materials are selected from the group consisting of an anti-solder material and a die-lubricant.

Claim 4 (withdrawn): The spraying system of claim 1, wherein said pressure boosting device increases the pressure of said one or more materials by passing each material through a separate chamber, wherein said material is acted upon by a force-exerting cylinder.

Claim 5 (withdrawn): The spraying system of claim 4, further comprising a speed control device for controlling the speed of the force-exerting cylinder.

Claim 6 (withdrawn): The spraying system of claim 4, further comprising an electronic solenoid valve connected to each force-exerting cylinder and in electronic communication with said control device, said solenoid valve for controlling the movement of the corresponding force-exerting cylinder in response to a signal from said control device.

Claim 7 (withdrawn): The spraying system of claim 1, wherein the operation of said pressure boosting device and said spray head is sequenced such that a pressurized supply of said one or more materials from said pressure boosting device is always available when needed for emission by said spray head.

Claim 8 (withdrawn): The spraying system of claim 1, further comprising a solenoid valve in electronic communication with said control device and located between each source of said one or more materials and said spray head, each solenoid valve for controlling the emission of a respective material from said spray head.

Claim 9 (withdrawn): The spraying system of claim 1, further comprising an apparatus for providing linear movement of said manipulator substantially along the longitudinal axis of said molding machine.

Claim 10 (withdrawn): The spraying system of claim 1, wherein said control device is in electronic communication with said molding machine, such that said control device controls the operation of said pressure boosting device and the spraying of said one or more materials onto portions of said mold by said spray head to coincide with a particular segment of the molding machine cycle.

Claim 11 (withdrawn): The spraying system of claim 1, wherein said control device is a programmable logic controller.

Claim 12 (withdrawn): The spraying system of claim 1, wherein said pressure boosting device supplies said one or more materials to said spray head at a substantially constant pressure.

Claim 13 (withdrawn): A pressure boosting apparatus for use in a die spraying system, said pressure boosting apparatus comprising:

- a chamber for receiving a sprayable material from a pressurized material source, said chamber located between said pressurized material source and an emitter of said material;

- a force-exerting cylinder coupled to said chamber, for exerting a force on said material residing therein;

- a conduit connecting said pressurized material source to said chamber;

- a conduit connecting said chamber to said emitter of said material; and

- a controller for sequencing the operation of said force-exerting cylinder such that a sufficient amount of said sprayable material at an increased pressure is supplied to said emitter from said chamber as needed.

Claim 14 (withdrawn): The pressure boosting apparatus of claim 13, further comprising a speed control device for regulating the speed of the force-exerting cylinder.

Claim 15 (withdrawn): The pressure boosting apparatus of claim 13, further comprising a solenoid valve for controlling the operation of the force-exerting cylinder.

Claim 16 (withdrawn): The pressure boosting apparatus of claim 15, wherein said solenoid valve is controlled by said control device.

Claim 17 (withdrawn): The pressure boosting apparatus of claim 13, further comprising at least one check valve for preventing the transport of pressurized material from said chamber toward said material source.

Claim 18 (withdrawn): The pressure boosting apparatus of claim 13, wherein said sprayable material is supplied to said emitter from said chamber at a substantially constant pressure.

Claim 19 (currently amended): A method of ensuring that a sprayable material is consistently supplied to the emitter of a mold spraying system at a sufficient pressure, said method comprising:

providing a pressurized source of said sprayable material, said source connected to said emitter by a conduit;

locating a chamber at some point between said source of said sprayable material and said emitter, such that said conduit passes therethrough;

coupling a force-exerting cylinder to said chamber; ~~and~~

providing a control device for actuating said force-exerting cylinder in preparation for operation of said emitter; and

providing a speed control device for regulating the speed of said force-exerting cylinder;

whereby said force-exerting cylinder exerts a force on said material in said chamber as required to cause said material to be consistently transported to said emitter at substantially some predetermined pressure.

Claim 20 (currently amended): The method of claim 19, further comprising providing a solenoid valve in electronic communication with said control device for operating actuating said force-exerting cylinder.

Claim 21 (canceled).

Claim 22 (original): The method of claim 19, further comprising prohibiting the flow of sprayable material of increased pressure from said chamber toward said source.

Claim 23 (original): The method of claim 19, wherein said sprayable material is supplied to said emitter at a substantially constant pressure.

Claim 24 (previously presented): The method of claim 19, wherein more than one sprayable material is supplied to said emitter.

Claim 25 (previously presented): The method of claim 24, wherein each of said sprayable materials passes through said chamber.

Claim 26 (previously presented): The method of claim 24, wherein only one, or selected ones, of said sprayable materials passes through said chamber.

Claim 27 (previously presented): The method of claim 19, wherein said pressurized source of sprayable material is located remotely from said emitter.

Claim 28 (previously presented): A method of ensuring that an emitter of a mold spraying system is able to consistently spray one or more sprayable materials onto a mold or die at an adequate pressure, said method comprising:

- providing a pressurized source of said one or more sprayable materials;

- providing an emitter located to spray said one or more sprayable materials onto a die or mold for treatment thereof;

- connecting said pressurized source of said one or more sprayable materials to said emitter by a conduit;

- determining a minimum pressure at which said emitter must expel said one or more sprayable materials in order to properly treat said die or mold;

- locating a pressure boosting device at some point between said pressurized source of said one or more sprayable materials and said emitter, such that said pressure boosting device is in communication with said conduit, said pressure boosting device further comprising;

 - a chamber for receiving an amount of sprayable material(s) from said pressurized source, via said conduit,

 - a force-exerting cylinder coupled to said chamber for reducing the volume thereof,

 - a control device for actuating said force-exerting cylinder, and

 - a regulating means for controlling the amount of force that said force exerting cylinder exerts on said sprayable material(s) within said chamber;

whereby said force-exerting cylinder exerts a force on said sprayable material in said chamber as required to cause said sprayable material to be consistently transported to said emitter at a pressure equal to or greater than said minimum pressure; and

whereby said one or more sprayable materials are consistently expelled from said emitter at an adequate pressure for properly spraying said die or mold, even when the pressure of said one or more sprayable materials supplied by said pressurized source is less than said minimum pressure.

Claim 29 (previously presented): The method of claim 28, further comprising providing a solenoid valve in electronic communication with said control device for operating said force-exerting cylinder.

Claim 30 (previously presented): The method of claim 28, further comprising prohibiting the flow of sprayable material of increased pressure from said chamber toward said source.

Claim 31 (previously presented): The method of claim 28, wherein said one or more sprayable materials are supplied to said emitter at a substantially constant pressure.

Claim 32 (previously presented): The method of claim 28, wherein each of said one or more sprayable materials passes through said chamber.

Claim 33 (previously presented): The method of claim 28, wherein only one, or selected ones, of said one or more sprayable materials passes through said chamber.

Claim 34 (previously presented): The method of claim 28, wherein said pressurized source of sprayable material is located remotely from said emitter.

Claim 35 (previously presented): The method of claim 28, wherein said regulating means is a speed controller that controls the speed at which said force-exerting cylinder advances into said chamber.

Claim 36 (currently amended): The method of claim 23 35, wherein said speed controller also controls the speed at which said force-exerting cylinder retracts from said chamber.